Listing of Claims

1. (Original) A method of enhancing the information contents which can be derived from a first image, containing motion artifacts, of a moving object, which method includes the following steps:

a.   using two further images which represent the object in a respective state of motion with as few motion artifacts as possible,

b.   determining a motion model which characterizes states of motion assumed by the object while performing the motion between the two states of motion,

c.   forming an intermediate image of the object from the motion model and the two further images, the intermediate image representing the object at least approximately as if it had performed the motion,

d.   forming a combination image from the intermediate image and the first image.

2. (Original) A method of enhancing the information contents which can be derived from a first image, containing motion artifacts, of a moving object, which method includes the following steps:

a.   using two further images which represent the object in a respective state of motion with as few motion artifacts as possible,

b.   determining a motion model which characterizes states of motion assumed by the object while performing the motion between the two states of motion,

c.   focusing the first image by means of the motion model.

3. (Original) A method of enhancing the information contents which can be derived from a first image, to be reconstructed from projections and containing motion artifacts, of a moving object, which method includes the following steps:

a.   using two further images which represent the object in a respective state of motion with as few motion artifacts as possible,

b.   determining a motion model which characterizes states of motion assumed by the object while performing the motion between the two states of motion,

c.   forming an intermediate image of the object from the motion model and the two further images, the intermediate image representing the object at least substantially as if it had performed the motion,

d.   reconstructing the first image from the projections of the object and the intermediate image.

4.   A method as claimed in ~~one of the~~ claims 1 ~~to 3, characterized in that~~ wherein a respective motion vector field is determined for parts of the object in order to determine the motion model.

5. (Currently Amended)   A method as claimed in ~~one of the~~ claims 1 ~~to 3~~, ~~characterized in that~~ wherein in order to form the intermediate image, first images of other states of motion of the object are formed by means of the two further images and the motion model, the images thus formed being weighted and subsequently superposed together with the two further images and in conformity with the frequency at which the respective state of motion represented in the images occurs while the motion is performed.

6. (Currently Amended)   A method as claimed in claim 1, ~~characterized in that~~ wherein the intermediate image and the first image are registered, notably elastically registered, prior to the formation of the combination image.

7. (Currently Amended)   A method as claimed in claim 1, ~~characterized in that~~ wherein the combination image is focused in a further step.

8. (Currently Amended)   A method as claimed in claim 2, ~~characterized in that~~ wherein a combination image is formed from the focused first image and one of the two further images, possibly by means of registration.

9. (Currently Amended)   A method as claimed in ~~one of the~~ claims 1 ~~to 3~~, ~~characterized in that~~ wherein the image is a PET image or a SPECT image and/~~or~~ the two further images are one of CT images and ~~or, in the case of a method as claimed in one of the claims 1 or 2,~~ MR images.

10. (Currently Amended)   An image processing system which includes a data processing unit for carrying out a method as claimed in ~~one of the~~ claims 1 ~~to 3 or a combination of these methods~~.

11. (Currently Amended)   An examination apparatus, notably a medical examination apparatus, which includes

-          a device for forming images and/or projections by means of a first imaging method,

-          a device for forming images and/or projections by means of a second imaging method,

-          an image processing system which includes a data processing unit for carrying out a method as claimed in ~~one of the~~ claims 1 ~~to 3 or a combination of these methods~~.

12. (Currently Amended)   <u>A computer readable medium containing instructions for controlling a</u> ~~A computer program or a computer program product which is arranged to co-operate with a~~ data processing unit in such a manner that the data processing unit can carry out a method as claimed in ~~one of the~~ claims 1 ~~to 3 or a combination of these methods~~.

13. (New)   A method as claimed in claim 2 wherein a respective motion vector field is determined for parts of the object in order to determine the motion model.

14. (New)   A method as claimed in claim 3 wherein a respective motion vector field is determined for parts of the object in order to determine the motion model.

15. (New)   A method as claimed in claim 2 wherein in order to form the intermediate image, first images of other states of motion of the object are formed by means of the two further images and the motion model, the images thus formed being weighted and subsequently superposed together with the two further images and in conformity with the frequency at which the respective state of motion represented in the images occurs while the motion is performed.

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16. (New)   A method as claimed in claim 3 wherein in order to form the intermediate image, first images of other states of motion of the object are formed by means of the two further images and the motion model, the images thus formed being weighted and subsequently superposed together with the two further images and in conformity with the frequency at which the respective state of motion represented in the images occurs while the motion is performed.

17. (New)   A method as claimed in claim 2 wherein the image is a PET image or a SPECT image and the two further images are one of CT images and MR images.

18. (New)   A method as claimed in claim 3 wherein the image is a PET image or a SPECT image and the two further images are one of CT images and MR images.